L 8817-65   EWT(m)/EWP(q)/EWP(b)   Pad   IJP(c)/RAEM(a)/AFWL/SSD/ESD(gs)/
ESD(t)   JD/HW
ACCESSION NR: AP4044968   S/0181/64/006/009/2859/2859

AUTHOR: Gusev, I. A; Murin, A. N.   B

TITLE: Cobalt diffusion in indium antimonide

SOURCE: Fizika tverdogo tela, v. 6, no. 9, 1964, 2859

TOPIC TAGS: indium antimonide, cobalt, cobalt diffusion, cobalt 60

ABSTRACT: Diffusion of radioactive cobalt, Co^{60}, in n-type indium
antimonide was investigated in the 425 — 500C range. Plate-shaped
InSb specimens were cut perpendicular to the [111] direction from a
single crystal. Co^{60} was electrolytically applied to the etched
surface of the specimens, and diffusion was carried out and studied
by methods described earlier (I. A. Gusev, A. N. Murin. FTT, 6, 1208,
1964). The results suggest that diffusion proceeded from a constant
[concentration] source. The temperature dependence of the diffusion
coefficient (D) fitted the equation

$$D = 2.7 \cdot 10^{-11} \exp\left(-\frac{0.39}{kT}\right) \text{ cm}^2/\text{sec.}$$

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L 8817-65
ACCESSION NR: AP4044968

Co solubility in InSb was approximately $2 \times 10^{19} cm^{-3}$ in the 425—
500C range. Orig. art. has: 1 figure.

ASSOCIATION: none

SUBMITTED: 15Apr64   ATD PRESS: 3107   ENCL: 00

SUB CODE: SS, NP   NO REF SOV: 001   OTHER: 000

Card 2/2

MURIN, A.N.; NEFEDOV, V.D.; KIRIN, I.S.; GRACHEV, S.A.; GUSEV, Y.A.;
    SHAPKIN, G.N.

Beta decay of bromine isotopes as a possible method of
synthesizing krypton compounds. Zhur.ob.khim. 35 no.12:2139-
2140 D '65.   (MIRA 19:1)

1. Fiziko-tekhnicheskiy institut imeni A.F.Ioffe AN SSSR.
Submitted February 25, 1965.

MURIN, A.N.; KIRIN, I.S.; NEFEDOV, V.D.; GRACHEV, S.A.; GUSEV, Yu.K.

Chemical changes in the β-decay of iodine isotopes as a method of synthesizing xenon compounds. Dokl. AN SSSR 161 no.3:611-613 Mr '65.

(MIRA 18:4)

1. Fiziko-tekhnicheskiy institut im. A.F.Ioffe AN SSSR. Submitted September 21, 1964.

L 52777-65   EWT(l)/EWT(m)/EWA(d)/T/EWP(t)/EWP(z)/EWP(b)/EWA(c)   LJP(c)

ACCESSION NR: AP5010752   UR/0181/65/007/004/1254/1256

AUTHOR: Belozerskiy, G. N.; Gusev, I. A.; Marin, A. N.; Nemilov, Yu. A.

TITLE: Mossbauer effect in indium antimonide

SOURCE: Fizika tverdogo tela, v. 7, no. 4, 1965, 1254-1256

TOPIC TAGS: Mossbauer effect, indium antimonide, iron impurity, absorption spectrum, iron valence

ABSTRACT: The purpose of the investigation was to study the Mossbauer effect and to investigate the states of impurity atoms of iron in indium antimonide. The attempt was made to observe the absorption spectrum in spite of the fact that the amount of iron that can be introduced in InSb samples of ordinary dimensions is at the limit of sensitivity of the Mossbauer method. The procedure of preparing the sample was described elsewhere (FTT v. 6, 2859, 1964). The source was Co^{57}, thoroughly purified, introduced into the lattice of indium antimonide. The Mossbauer apparatus consisted of a motor with reduction gear producing a uniform reciprocating motion of the absorber (stainless steel Kh23N18T) relative to the source. The detector was a proportional counter. The effect obtained at room temperature

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L 52777-65
ACCESSION NR: AP5010752

was approximately 31%, which was much higher than observed in the same geometry
and with the same absorber with sources of stainless stell, chromium, and tungsten.
The chemical shift, 0.4 mm/sec, is characteristic of iron in trivalent state. It
is pointed out that the Mossbauer spectrum of indium antimonide differs from that
of indium arsenide, in spite of the fact that both have the same crystal structure.
The temperature dependence of the Mossbauer effect and of the chemical shift was
also investigated. Both the effect and the chemical shift increased with decrease
in temperature (~20% on going from room temperature to that of liquid nitrogen) and
decreased by the same amount on going to 200C. An abrupt change in the Mossbauer
spectrum takes place when the sample is heated to 400C, due to the change in the
stoichiometric composition of the sample. It is concluded on the basis of the data
that iron in indium antimonide has a configuration $3d^5$ and is trivalent. The ra-
ther weak dependence of the effect on the temperature indicates that the iron atoms
vibrate in the optical modes. A study of the dynamic dependence of the Mossbauer
effect on the stoichiometry of the crystal is now under way. "The authors thank
S. B. Tomilov for help in preparing the sources." Orig. art. has: 1 figure and 1
table.

ASSOCIATION: None

Card 2/3

L 52777-65
ACCESSION NR: AP5010752

SUBMITTED: 17Nov64   ENCL: 00   SUB CODE: SS, IC

NR REF SOV: 003   OTHER: 005

Card 3/3

L 17372-66   EWT(m)/EWP(t)   DIAAP/IJP(c)   JD
ACC NR: AP6004508   SOURCE CODE: UR/0186/65/007/005/0629/0630

AUTHOR: Murin, A. N.; Nefedov, V. D.; Kirin, I. S.; Leonov, V. V.; Zaytsev, V. M.;
Akulov, G. P.

ORG: none

TITLE: Formation of fluorine-containing compounds of xenon during β-radiation of
I^{131} contained in iodine pentafluoride

SOURCE: Radiokhimiya, v. 7, no. 5, 1965, 629-630

TOPIC TAGS: xenon, fluorine, beta radiation, iodine, elemental halogen, fluorine
compound, radioisotope

ABSTRACT: Free Xe^{131} was accumulated by bubbling helium for 8 hours at room tem-
perature through a liquid $J^{131}F_5$. The origin of this free Xe^{131} is traced to the
intermediate formation of a molecular ion $[Xe^{131}F_5]^+$. After removal of free Xe^{131},
the β-radiation material was hydrolyzed and the products of hydrolysis were subject-
ed to reduction with various reducing agents. In the course of treatment with HCl
the xenon-fluorine compounds were reduced to free xenon. No free xenon was obtain-
ed when KJ, hydroxylamine, or Fe^{2+} were used as reducing agents. It was found that

Card 1/2   UDC: 546.295'16 : 541.28 : 546.155'161

L 17372-66

ACC NR: AP6004508   0

the xenon-fluorine compounds are more volatile than the starting $J^{131}F_5$.
/Editor's note: J is the Russian periodic symbol for iodine./
SUB CODE: 07/   SUBM DATE: 28Dec64/   ORIG REF: 003/   OTH REF: 003

Card 2/2 aat

L 17371-66   EWT(m)/EWP(t)   DIAAP/IJP(e)   JD

ACC NR: AP6004509   SOURCE CODE: UR/0186/65/007/005/0631/0632

AUTHOR: Murin, A. N.; Nefedov, V. D.; Kirin, I. S.; Grachev, S. A.; Gusev, Yu. K.; Saykov, Yu. P.
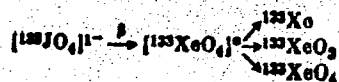
ORG: none   39
                                                                 B

TITLE: Formation of oxygen-xenon compounds during β-radiation of I^{133} incorporated in potassium periodide

SOURCE: Radiokhimiya, v. 7, no. 5, 1965, 631-632

TOPIC TAGS: xenon, oxide formation, beta radiation, iodine, radioisotope

ABSTRACT: Xenon oxides (XeO_4 and XeO_3) were prepared by β-radiation of potassium periodide containing radioactive J^{133} isotope according to the following scheme:

$$[^{133}JO_4]^{1-} \xrightarrow{\beta} [^{133}XeO_4]^{\circ} \begin{array}{l} \nearrow ^{133}Xe \\ \rightarrow ^{133}XeO_3 \\ \searrow ^{133}XeO_4 \end{array}$$

The preparation procedure was as follows: helium gas was bubbled for 30 minutes at

UDC: 541.28 : 546.295

Card 1/2   Z

L 17371-66
ACC NR: AP6004509

O

a rate of 26 ml/min through a solution of $KJ^{133}O_4$ and KJ^{133} in 0.002 normal H_2SO_4 to remove free xenon. The elemental iodine was removed from the gas stream by passing helium through a KOH-absorber. The xenon oxides were trapped on AG-5 activated carbon at liquid nitrogen temperature. The quantity of trapped xenon-133 was measured using an AI-100-1 analyzer. It was found that XeO_4 is unstable in acidic media and decomposes to XeO_3. /Editor's note: J is the Russian periodic symbol for iodine./

SUB CODE: 07/   SUBM DATE: 08Jan65/   ORIG REF: 002/   OTH REF: 005

Card 2/2 nat

L 31095-66   EWT(m)

ACC NR: AP6022810

SOURCE CODE: UR/0089/65/019/005/0458/0459

AUTHOR: Murin, A. N.; Divskiy, ; Zakharova, A. E.

ORG: none

TITLE: Production of stable krypton and xenon isotopes by irradiation of aluminum halides in reactors

SOURCE: Atomnaya energiya, v. 19, no. 5, 1965, 458-459

TOPIC TAGS: isotope, krypton, xenon, halide, reactor neutron flux, inert gas, quartz, activated carbon, mass spectroscopy, gas analysis, aluminum compound, irradiation

ABSTRACT: Enriched isotopes of the inert gases may be obtained by exposure of aluminum halides to a neutron flux. The halides were prepared by the reduction of the corresponding Ag halide with Al in quartz containers at about $400°C$. Irradiation of 20 g of the Al halides by a total flux of 2.16×10^{17} n/cm^2 resulted in the following yields of gaseous products: from $AlBr_3$, 2.4×10^{-2} cm^3 of ^{80}Kr and 0.6×10^{-2} cm^3 of ^{82}Kr (using ^{79}Br and ^{81}Br, respectively); from $Al^{127}I$, 6.8×10^{-4} cm^3 of ^{128}Xe. After exposure to high temperatures for three weeks, the quartz ampoules placed in a gas purification system containing liquid nitrogen or dry ice (for work with xenon) traps, KOH, CuO, and Ca. The purified gases were transferred into ampoules containing active carbon. Mass spectrograms of xenon exhibited only the peak corresponding to

UDC: 621.039.3

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L 31095-66

ACC NR: AP6022810

^{128}Xe; the atmospheric impurities amounted to less than 0.1%; those of krypton showed that the mixture contained ^{80}Kr/^{82}Kr, at a ratio of 3.8, as expected from calculations. Atmospheric impurities were present in amounts less than 0.05%. The authors thank D. M. Kaminker for making possible the work on the reactor of the Physicotechnical Institute im. A. F. Ioffe and also I. K. Kirin and Yu. A. Shukolyukov for assistance in the research. Graduate student N. S. Okunev actively participated in the work. Orig. art. has: 1 table. [NA]

SUB CODE: 18 / SUBM DATE: 01Mar65 / ORIG REF: 003

Card 2/2

L 58479-65   EWT(1)/EEC(b)-2/T   Pl-4   IJP(c)   GG
ACCESSION NR: AP5013147

UR/0079/65/035/005/0916/0923
541.15

AUTHOR: Bogdanov, R. V.; Murin, A. N.

TITLE: Conditions of separation of radiophosphine from mixed KCl·CaCl$_2$ crystals irradiated with high-energy protons

SOURCE: Zhurnal obshchey khimii, v. 35, no. 5, 1965, 916-923

TOPIC TAGS: potassium chloride crystal, calcium chloride crystal, phosphine, radioactive phosphorus

ABSTRACT: The article describes a method of recovering radioactive phosphine from mixed KCl·CaCl$_2$ crystals irradiated with high-energy protons. An impurity (CaCl$_2$) was introduced to stabilize the electron-hole processes in the crystal lattice. This introduction of Ca^{++} ions into KCl caused the formation of additional V and Z centers after irradiation. Radiochemical analysis of the valence forms of radio-phosphorus P^{32} in the mixed crystals thus yielded much more stable results than those obtained by analyzing pure KCl. It was shown that the amount of radiophos-phine separated from the irradiated crystals depends on the amount of added carrier

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ACCESSION NR: AP5013147

Ca_3P_2 and on the acidity of the medium in which the active crystal is dissolved.
This relationship also holds for the content of P^{32} obtained in solution in the
form of oxyacids, at least in the 0.5-5 pH range. The nature of the relationships
indicates that a considerable part of P^{32} in the irradiated crystal is not in the
form of some carrier, but tends to assume a given chemical form under the influence
of conditions associated with the migration of phosphorus from the solid target in-
to the solution. Orig. art. has: 4 figures and 1 table.

ASSOCIATION: Leningradskiy gosudarstvennyy universitet (Leningrad State University)

SUBMITTED: 20Mar64   ENCL: 00   SUB CODE: SS, NP

NO REF SOV: 005   OTHER: 004

Card 2/2

ACC NR: AP6036974   (A, N)   SOURCE CODE: UR/0181/66/008/011/3291/3294

AUTHOR: Murin, A. N.; Lur'ye, B. G.; Seregin, P. P.; Cherezov, N. K.

ORG: Leningrad State University im. A. A. Zhdanov (Leningradskiy gosudarstvennyy universitet)

TITLE: Study of the state of iron in single crystals of AgCl by the Mossbauer method

SOURCE: Fizika tverdogo tela, v. 8, no. 11, 1966, 3291-3294

TOPIC TAGS: iron, silver chloride, Mossbauer spectrum, emission spectrum, crystal imperfection

ABSTRACT: The sources used for the investigation were prepared by diffusing Co^{57} in single crystals of AgCl grown by the Stockbarger method and specially treated. The Mossbauer spectrum was measured with apparatus with constant velocity and with electrodynamic vibrator. The absorber was stainless-steel foil (8 mg/cm^2) and the detector a proportional counter. The Mossbauer emission spectrum of Fe^{57m}, localized in single crystal AgCl, was found to consist of two doublets, A) with splitting 0.30 mm/sec and B) with splitting 0.20 mm/sec. Comparison of the spectrum at two temperatures (293 and 77K) and after different annealing and cooling conditions leads to the conclusion that the iron is present in the form of Fe^{2+} and Fe^{3+} ions, situated apparently in the lattice points and constituting part of complexes with vacancies. Doublet

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ACC NR: AP6036974

A corresponds to Fe^{3+} and doublet B to Fe^{2+}. The authors thank S. B. Tomilov for participating in the preparation of the $Co^{57}Cl_2$ compound. Orig. art. has: 2 figures.

SUB CODE: 20/ SUBM DATE: 17May66/ OTH REF: 009

Card 2/2

ACC NR: AT'C.177   SOURCE CODE: UR/3119/66/000/004/0013/0021

AUTHOR: Bogdanov, R. V.; Murin, A. N.

ORG: Leningrad State University im. A. A. Zhdanov (Leningradskiy gosudarstvenny universitet)

TITLE: Relation between radiochemical and radiation-chemical effects in KCl crystals irradiated by high-energy protons

SOURCE: AN LatSSR. Institut fiziki. Radiatsionnay fizika, no. 4, 1966. Ionnyye kristally (ionic crystals), 13-21

TOPIC TAGS: radiation chemistry, photochemistry, potassium chloride, proton bombardment, phosphorus compound, radioactive decay

ABSTRACT: The purpose of the investigation was to determine the influence of radiation and photochemical effects on the chemical state of atoms of radioactive phosphorus in potassium chloride. The KCl crystals (pure and with $CaCl_2$ admixture) used as targets for proton irradiation were grown by the Kiropoulos method. The crystals were placed in light tight boxes and exposed to an external beam of protons of 660-Mev energy with a maximum total proton flux $2 \times 10^{12}/cm^2$. The crystals were also exposed to light in the F band (560 nm) for different durations, after which the distribution of the activity of the radioactive phosphor was determined for the three produced fractions (phosphate, phosphite, and hypophosphite) by a procedure described in an earlier paper (Izv. AN SSSR, v. 8, 1433, 1961). The results show that illumina-

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ACC NR: AT7001779

tion of the crystal decreases the yield of the phosphate and phosphite radioactive
phosphorus, and increases the yield of the hypophosphite fraction. After about
three hours of illumination, the concentrations of the activity of the phosphorus
by fractions change from 35.5, 20, and 44.5% for H_3PO_4, H_3PO_3, and H_3PO_2, to 20, 10,
and 70% respectively. In the mixed crystals the redistribution of the activity oc-
curred at a lower speed, and no plateau was reached even after ten hours. Total
bleaching of the crystals, by exposure to 560-nm light for several days together with
a tungsten lamp, showed that after 8 or 10 days the processes reverse, and the activi-
ty of the hypophosphite decreases whereas that of the phosphite and phosphate in-
creases. The effect of proton irradiation on the chemical state of the radioactive
phosphorus was also studied and it was found that proton irradiation first oxidizes
the radioactive phosphorus intensely, after which the rate of oxidation decreases
and reduction of the radioactive phosphate sets in. Possible causes of all the ef-
fects are indicated. The authors thank G. D. Stoletov for help in irradiating the
targets at the synchrocyclotron of the Joint Institute of Nuclear Research. Orig.
art. has: 5 figures.

SUB CODE: 20/07/15/ SUBM DATE: 00/ ORIG REF: 002/ OTH REF: 008

2/2

MURIN, A.V.

BOT/144-59-5-13/14

AUTHORS: Daryuga, I.P., Assistant, Kovylin, Yu.Ya., Senior Lecturer, Kul'tsev, P.T., Senior Lecturer, Murin, A.V., Assistant, Shirkov, G.V., Assistant, Titov, V.N., Senior Lecturer.

TITLE: An Installation for the Displacement of a Betatron Electromagnet

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Elektromekhanika, 1959, Nr 5, pp 110 - 113 (USSR)

ABSTRACT: In practice it is often necessary to displace the betatron electromagnet both in the vertical and horizontal directions, and also to carry out a rotation about a horizontal axis. The authors state that Western literature (Refs 1 - 4) does not give sufficient detail of how this is carried out. The Tomsk Polytechnical Institute has therefore designed and built an installation which may be used to displace the betatron electromagnet in the above way.

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The magnet is raised or lowered (Figure 1) with the aid of motor driven screws 1. It may be rotated with the aid of another motor driven screw 2, and displaced in a horizontal direction on a pair of rails on which the wheels 3 run. The maximum vertical displacement is 1000 mm and the displacement can be carried out at the rate of 0.30 m/min. The maximum angular displacement of the electromagnet is 60 and the maximum horizontal displacement is unlimited. The rate of the angular displacement is 0.14 - 0.106 rev/min and the rate of the horizontal displacement is 0.55 m/min. The weight of the installation is 3.5 tons. There are 2 figures and 5 references, of which 3 are English, 1 is German and 1 is Soviet.

ASSOCIATION: Kafedra prikladnoy mekhaniki, Tomskiy politekhnicheskiy institut (Chair of Applied Mechanics, Tomsk Polytechnical Institute)

Card 2/2

L 46155-65   EWT(m)/EPA(w)-2/EWA(m)-2   Pt-7/Pab-10   IJP(c)   GS

ACCESSION NR: AT5007934   S/0000/64/000/000/0462/0467

AUTHOR: Kapchinskiy, I. M.; Kul'man, V. G.; Lazarev, N. V.; Murin, B. P.;
Nevyazhskiy, I. Kh.; Plotnikov, V. K.; Polyakov, B. I.

TITLE: Design of an injector for the 70-Gev proton synchrotron

SOURCE: International Conference on High Energy Accelerators. Dubna, 1963,
Trudy. Moscow, Atomizdat, 1964, 462-467

TOPIC TAGS: high energy accelerator, proton synchrotron, proton accelerator

ABSTRACT: The injector of the 70-Gev proton synchrotron is a strong-focusing linear
accelerator, which consists of three cylindrical resonators with drift tubes. The
proton beam is generated by a duaplasmatron and is preliminarily accelerated in an
electrostatic shock tube up to 700-kev. The high-voltage source for the tube is a
pulse transformer. The fore-injector was developed by the NIIEFA GKAE SSSR. The
proton energy at the injector's output is assumed to be 100 Mev, which, on the one
hand, ensures the capture of the particles into the synchrotron state at an initial
field strength in the ring chamber of 75 gauss, and, on the other hand, permits the
maintenance, along the entire length of the injector, of a monotypic accelerating

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ACCESSION NR: AT5007934

system without substantial lowering of the shunt-impedance at the ring's output. The phase volume of the beam is connected with the emmittance of the beam by the relation $v = \frac{\beta}{\sqrt{1-\beta^2}}$ and is an invariant quantity. A similar relation exists between the capacity and the acceptance of the channel. The specific acceleration is the ratio of the increment of energy of a synchronous particle per wave length to the rest energy. The synchronous phase is read off from the maximum of the field. The shunt-impedance is measured as the quotient of twice the high-frequency power loss in the copper divided by the square of the amplitude of the accelerating field. Values of the shunt-impedances and of the Q factor are taken with a three-halves allowance relative to the computed quantities. The frequency of the accelerating field was chosen lower than that in the injectors of the proton synchrotrons of CERN and Brookhaven. The choice of a 150 mc frequency was dictated mainly by the desire to obtain sufficiently high capacity for the channel. The length and, correspondingly, the cost of the injector were therefore increased somewhat, which, however, is compensated by a lowering of the high-frequency power loss in the resonators. The capacity of the focusing channel equals 0.4 cm·millirad, which ensures the possibility of raising the output current of the injector up to 100 milliamperes for a beam phase volume of 0.1 cm·millirad (I. M. Kapchinskiy, *Atomnaya*

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ACCESSION NR: AT5007934   9

energiya, 13, 235 (1962)). For the chosen values of the specific acceleration and
of the synchronous phase, the longitudinal Coulomb repulsion does not limit the
beam current until the extreme space charge values are reached, which are determined
by the transverse lateral repulsion (I. M. Kapchinskiy, A. S. Kronrod, present
conference, p. 906). It is assumed that the acceleration will be mainly due to the
energy preliminarily stored in the resonators. The field drop during the 12 μsec
proton pulse amounts to approximately 15% and will be corrected by the generator's
focusing during the proton current pulse, for which standby power is provided. In
addition, it is proposed that the initial value of the synchronous phase should be
increased. The capacity of the synchrotron's ring chamber equals 1 cm·millirad,
which permits realization of a three-revolution injection of about 40 μsec duration
for a correspondingly lower beam current. Such an injection scheme is provided as
an alternative to other schemes. The present report discusses in detail the radio
engineering aspects of the system, the focusing system, and the design. "The de-
sign of the injector was carried out under the scientific guidance of V. V.
Vladimirskiy and A. L. Mints. The design was developed by the joint participation
of the following associates of the Institute of Theoretical and Experimental Physics,
GKAE SSSR, the Radio Engineering Institute AN SSSR, the Scientific-Research Insti-
tute of Electro-physical Equipment imeni D. V. Yefremov GKAE SSSR and other orga-
nizations: M. I. Basalayev, V. A. Batalin, Yu. P. Vakhrushin, Ye. N. Danil'tsev,

Card 3/4

L 46155-65

ACCESSION NR: AT5007934   /3

A. A. Zhdanko, F. G. Zheleznikov, N. M. Kristi, N. I. Kisin, N. V. Kovalev, K. M. Kozlov, N. S. Podoynitsyn, A. V. Popkovich, I. M. Royfe, V. F. Semenov, A. V. Solnyshkov, N. K. Titov, and others." Orig. art. has: 2 figures, 2 tables.

ASSOCIATION: Radiotekhnicheskiy institut AN SSSR (Radio Engineering Institute, AN SSSR)

SUBMITTED: 26May64   ENCL: 00   SUB CODE: NP

NO REF SOV: 005   OTHER: 000

Card 4/4

L 58916-65   EWT(m)/EPA(w)-2/EWA(m)-2   Pt-7   IJP(c)   GS

ACCESSION NR: AT5007936   S/0000/64/000/000/0471/0474

AUTHOR: Belov, A. D.; Murin, B. P.; Solov'yev, L. Yu.; Kapchinskiy, I. M.

TITLE: Automatic regulation and measurement of the parameters of the high-frequency fields in a linear 100-Mev accelerator-injector

SOURCE: International Conference on High Energy Accelerators. Dubna, 1963. Trudy. Moscow, Atomizdat, 1964, 471-474

TOPIC TAGS: linear accelerator, high energy accelerator

ABSTRACT: In a linear 100-Mev proton accelerator-injector, the amplitude and phase of the high-frequency oscillations must be stabilized with an accuracy respectively ± 2 and $\pm 3°$, according to the tolerances (I. M. Kapchinskiy et al., present conference, p. 462). In an accelerator one applies a system for the automatic regulation of the phase of the accelerating high-frequency voltage and the characteristic frequency of the resonator. The accepted measures for stabilizing the feed voltages in the generators permit a considerable decrease in the variation of the phase in the high-frequency accelerator channels. It is possible here to apply only electronic-mechanical automatic regulation systems, which eliminates slow phase departures in the high-frequency feed track and the thermal disorganization of the reso-

Card 1/3

L 58916-65

ACCESSION NR: AT5007936   O

nator (B. P. Murin, NT-2160, Radiotekhnicheskiy institut AN SSSR. M. 1960). The
present report discusses the general scheme of the high-frequency track and the
electric circuit of the automatic phase regulation system in the accelerator chan-
nels. Selection of the carrier phases yields, for a given accuracy of the automa-
tic phase regulation system, optimum stability of the fixed difference of phases
among the resonators. The present report discusses the expanded block diagram of
the automatic phase regulation system for the second channel. In the bridge-type
phase transducer, a signal from the resonator is in phase with the high-frequency
carrier phase oscillations. In case of the presence of a phase error, a pulse sig-
nal will appear at the output of the phase transducer. The information entering
the regulation system is free of transitional processes, since the phase transducer
has a stroboscope circuit which permits limiting the information during the course
of the last 30 microseconds after establishment of the high-frequency field in the
resonator. In the circuit for processing the error signal, the information is held
up to the following track, and after arrival of the second error signal of the same
sign from preceding tracks the circuit transforms it into a controlling voltage,
which acts upon the electric motors through magnetic amplifiers. Each resonator
has two plates for correcting the distribution of the accelerating field along the
resonator axis. The report discusses the main parameters of the automatic phase

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L 58916-65

ACCESSION NR: AT5007936   /

regulation system and the principal system errors and their propagation and a system of automatic control for the fixed phase relations among the resonators. Amplitude transducers are employed for controlling the amplitude of the high-frequency field. The transducers are connected with loops in the resonators with the aid of a coaxial 75-ohm cable, in which a traveling-wave state has been established. The transducer transforms the high-frequency pulse into a video pulse, whose amplitude is measured by a compensation method with manual setting of the carrier voltage. Accuracy of measurement is 0.5%. Aperture of the first drift tube is 20 mm. The transverse acceptance of the linear accelerator has been computed to be about 0.8 cm·millirad for full aperture. The accelerator will deliver about 100 milliamperes. Pulse length will vary from 12 microseconds for one-revolution injection up to 40 microseconds for three. The repetition rate is 12 pulses per minute. Orig. art. has: 4 figures.

ASSOCIATION: Radiotekhnicheskiy institut AN SSSR (Radio Engineering Institute, AN SSSR)

SUBMITTED: 26May64   ENCL: 00   SUB CODE: EE, NP

NO REF SOV: 002   OTHER: 000

Card 3/3 dm

USSR/Electronics - Television Competitions   Mar 53

"Results of the Competition on Mass Television Receivers"

Radio, No 3, pp 43-45

Second prizes of 10,000 rubles were awarded to G. A. Vilkov for the 20-tube "TV-3" receiver and to V. B. Ivanov and I. N. Tovbin for the 15-tube "Luch" receiver. An incentive award of 3,000 rubles was awarded to I. G. Starikov for his "Pioner" and one 2,000 rubles was awarded to V. A. Klibson, M. G. Markovich, D. M. Murin, and D. S. Kheyfets for their 14-tube "Leningrad". /Klibson and Kheyfets were designers of the commercial "Leningrad T-2" receiver./ On the whole, competition was adjudged unsuccessful.

PA 255T81

L 27254-66   EPF(n)-2/EWT(m)/EWP(t)   IJP(c)   WW/JD/JG

ACC NR: AP6009833   SOURCE CODE: UR/0413/66/000/004/0027/0028

AUTHOR: Kovalenko, A. M.; Murin, P. V.; Borodulin, G. M.; Yel'tsov, K. S.;   58
Smolyakov, V. F.   B

ORG: none

TITLE: Method for vacuum degassing of liquid metals with simultaneous treatment with
slag. Class 18, No. 178843   18   18

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 4, 1966, 27-28

TOPIC TAGS: metal, liquid metal, metal degassing, vacuum degassing

ABSTRACT: This Author Certificate presents a method for vacuum degassing and simul-
taneous refining of liquid metals by a slag treatment in a two-tube chamber. The
metal is sucked into the chamber through one tube and, after vacuum degassing, is
discharged through the other tube containing liquid slag which refines the metal.

SUB CODE: 11 / SUBM DATE: 05Sep64

Card 1/1 CC   UDC: 669.162.683-982

MURIN, G. A.

"Hydraulic Resistance of Steel Tubes.: Isv. VTI, No. 10(1948)

Steam/Engineering   Oct 48
    Turbines
    Pressure, Air

"Air in Turbine Installations," G. A. Murin,
Engr, 2 pp

"Elek Stants" Vol XIX, No 10

Treats subject under: effect of air on exhaust
steam pressure, entry of air into condenser, and
operational control of the amount of air in tur-
bine installations.

                                                    30/49T63

MURIN, G.A.

"The Influence of the Leakage of Internal Compart-
ments of Condensers on the Vacuum," Elek. Stan.,
No. 2, 1949. Engr.

MURIN, G. A.

"Reconstruction of Steam Turbine Condensers,"

Elek. Stan., No. 10, 1949. Engr.

MURIN, G.A.

Murin, G. A.: Teplotekhnicheskie Izmereniya (Thermo-
technical measurements). Moscow: Gosudarst. Energet.

USSR

MURIN, G. A.

Steel industry and Trade Czechoslovakia

Cooling of the condensate in condensers of steam turbines., Za ekon. top., 9, No. 1, 1952

MURIN, G. A.

Thermometers and Thermometry

Measuring the temperature of exhaust steam.
Elek. sta. 23, No. 7, 1952.

9. Monthly List of Russian Accessions, Library of Congress, November 1952.   UNCLASSIFIED.

MURIN, G. A.

Fuels

Fuel Abstracts
May 1954
Steam Raising and
Steam Engines

3798.   OPERATIONAL CHECK OF AIR-TIGHTNESS ON TURBINE SETS. - Murin, G.A. (Elekt. Sta. (Pwr Sta., Moscow), May 1953, vol. 24, 10-131. Details are given of the indicating throttle aerometer of the All-Union Institute of Thermal Technology, which can be used for the continuous operational control of air tightness in steam turbine units, where a continuous record of air

tightness is provided by the readings of air suction into the turbine. Reduction of this suction results in fuel economy. Curves illustrate a number of relationships.

B.E.A.

MURIN, Georgiy Aleksandrovich; YURKEVICH, M.T., redaktor; VORONIN, K.P.,
    tekhnicheskiy redaktor

[Thermotechnical measurements] Teplotekhnicheskie izmereniia. Izd.
2-oe, ispr. i dop. Moskva, Gos. energ. izd-vo, 1956, 544 p.
    (Thermometers and thermometry)   (MIRA 10:1)

MURIN G.A.

603. STEAM/AIR MIXTURE COOLER FOR STEAM TURBINE CONDENSERS. Murin, G.A.
(Elekt. Sta. (Pwr Sta., Moscow), May 1957, vol. 28, 27-31). The additional
cooling of the steam/air mixture pumped from the condenser of the pass-out
mixing type cooler described warrants its inclusion in many cases where operation
of the condensing equipment of turbine sets is unsatisfactory. As a result
of installation of the mixture cooler in an AT-25 turbine set in 1954/6 a
vacuum increased by 0.8% was obtained in the low load season (summer and
spring-autumn periods) thus effecting a saving of over 1000 tons of conventional
fuel. To obtain greater efficiency from the cooler it should be placed
immediately behind the condenser at the point of suction of the steam/air
mixture and coupled to the condenser body by air suction piping along the
greatest diameter.

C.E.A.

PHASE I BOOK EXPLOITATION   SOV/4662

Murin, Georgiy Aleksandrovich

Teplotekhnicheskiye izmereniya (Heat Engineering Measurements) 3d ed., rev.
   Moscow, Gosenergoizdat, 1958.   568 p.   17,000 copies printed.

Ed.: V. V. Nikolayev; Tech. Ed.: N. I. Borunov.

PURPOSE: This textbook is intended for students of power engineering special-
   ties and corresponds to the course in heat engineering measurements in
   tekhnikums.

COVERAGE: The book gives basic notions on heat engineering measurements.
   Operating principles, arrangement, purpose, methods of adjustment, and
   inspection of measuring instruments used in heat power engineering are
   described.   The author thanks engineer M. T. Yurkevich for helping in the
   editorial work.   There are 15 references, all Soviet.

Card 1/5

MURINA, G.A.; KHOREVA, B.Ya.; SHCHIGOLEV, N.D.

Formation and activation of metamorphic series in the south-
western part of the Pamirs according to geological, petrological,
and radiological data. Izv. AN SSSR. Ser. geol. 30 no.8:9-17
Ag '65. (MIRA 18:9)

1. Vsesoyuznyy nauchno-issledovtel'skiy geologicheskiy institut,
Leningrad.

G. F.

*MURIN, S. F., MOROSOV, V. S., SAKSONOV, P. P., ANTIPOV, V. V., SHASHKOV, V. S.,
and RAZGOVOROV, S. F.,

"On the Biological Effect of High-Energy Protons"

report submitted for the 14th Intl. Astronautical Federation (IAF) Congress,
Bioastronautics Committee, Paris, France, 25 Sep-1 Oct 63

*May be MURIN, G. F.

ANTIPOV, V. V.; VYSOTSKIY, V. G.; DAVYDOV, B. I.; DOBROV, N. N.; MOROZOV, V. S.; MURIN, G. F.; NIKITIN, M. D.; SAKSONOV, P. P.

"Some problems in providing radiation safety in space flight."

report presented at the 5th Intl Space Science Symp, Florence, 12-16 May 64.

LEBEDEV, V.N.; MOROZOV, V.S.; MURIN, G.F.; NIKITIN, M.D.; SALATSKAYA, M.I.

Cosmic radiation doses in biocameras of the spaceships "Vostok-3" and "Vostok-4". Kosm. issl. 1 no.2:309-311 S-O '63.
(MIRA 17:4)

ACCESSION NR: AP4043503   S/0293/64/002/004/0641/0647

AUTHOR: Shashkov, V. S.; Saksonov, P. P.; Antipov, V. V.; Morozov,
V. S.; Murin, G. F.; Raskovorov, B. L.; Suvorov, N. N.; Fedoseyev, V. M.

TITLE: Effectiveness of pharmacological and chemical protection
under conditions of gamma radiation and protons with energies of
660 and 120 Mev

SOURCE: Kosmicheskiye issledovaniya, v. 2, no. 4, 1964, 641-647

TOPIC TAGS: radiation protection, pharmacology, chemistry, radio-
protective pharmaceutical, radioprotective chemical, gamma radiation,
proton, corpuscular radiation

ABSTRACT: The comparative effects of gamma and corpuscular radiation
were studied using 1360 white mice. In each of three tests, the
protective influence of AET, mercamine, serotonine, 5-methoxytryptamine,
tryptamine, and 5-oxytryptophane was tested. Experimental animals
were compared with irradiated controls (mice not given protective
agents) and biological controls (mice under normal conditions). In
the first test, 240 mice were irradiated with an 850-r(DL$_{100}$) dose
of cobalt-60 gamma rays. All irradiated controls perished. Of those
administered radioprotective agents, mice given AET (150 mg/kg),

Card 1/3

ACCESSION NR: AP4043503

SUBMITTED: 17Feb64

ATD PRESS: 3093

ENCL: 00

SUB CODE: LS, OC

NO REF SOV: 019

OTHER: 021

Card 3/3

ACCESSION NR: AP4043503

5-methoxytryptamine (75 mg/kg), serotonine (50 mg/kg), and mercamine (150 mg/kg) showed significantly greater viability and longer mean longevity than mice given tryptamine (100 mg/kg) and 5-oxytryptophane (250 mg/kg). In the second test, 400 mice received 660 Mev corpuscular radiation with protons in an 1178-rad (DL_{100}) dose. Of 160 irradiated controls, only 3 survived for 30 days. Of mice administered radioprotectors, those given AET and 5-methoxytryptamine showed the greatest survival. Mercamine and serotonine exerted the same protective influence as in the test with gamma rays. In other investigations, AET has been shown to be an effective protective agent even during 1600 rad of absolutely lethal proton radiation. In the third test, 220 mice received 1200—100 rad (DL_{100}) doses of 120 Mev protons. Of 60 irradiated controls, 2 survived for 30 days. The protective influence of AET, serotonine, mercamine, and 5-methoxytryptamine was preserved in this test. Finally, it was concluded that the relative biological effectiveness of 660 and 120 Mev protons was 75% that of gamma rays. Orig. art. has 4 tables.

ASSOCIATION: None

Card 2/3

M U R I N, G . F   *3*

ACCESSION NR: AT4042646   S/0000/63/000/000/0023/0026

AUTHOR: Antipov, V. V.; Vy*sotskiy, V. G.; Davy*dov, B. I.; Dobrov, N. N.;
Morozov, V. S.; Murin, G. F.; Nikitin, M. D.; Saksonov, P. P.

TITLE: Some problems in providing radiation safety in space flight

SOURCE: Konferentsiya po aviatsionnoy i kosmicheskoy meditsine, 1963.
Aviatsionnaya i kosmicheskaya meditsina (Aviation and space medicine); materialy*
konferentsii. Moscow, 1963, 23-26

TOPIC TAGS: radiation safety, space flight, spaceflight factors, cosmic radiation
effect, vibration, acceleration, radiation protection, dosimetric control, bio-
logical dosimeter, solar flare, antiradiation drug/RBE

ABSTRACT: Although protons are an important component of primary cosmic radiation,
experimental data on their biological action under space conditions and their
RBE compared with x-rays and gamma-rays are lacking. It has been established that
the RBE of protons with energies in excess of 100 Mev (LD$_{50}$ for rodents) is a
little less than one. However, the data on which this figure is based were obtain-
ed with various particle accelerators of high-dose power and pulsed radiation.

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ACCESSION NR: AT4042646

conditio... not found in space. The RBE of alpha-particles and high-energy nuclei of the heavier elements has been estimated as lying between 2 and 10. Laboratory verification with animals is unfortunately impossible, since sufficiently powerful accelerators do not exist. The combined effect of radiation and other space-flight factors (vibration, acceleration, modified atmosphere, etc.) is another important area where few experimental data are available. It is necessary to know in what ways and to what extent cosmic radiation contributes to the total effect of space flight on the human body, and what is the qualitative and quantitative influence of other space-flight factors on the biological effect of radiation, in order to formulate scientifically-based antiradiation drugs and safety measures. Experiments have shown that the development of radiation damage is modified by acceleration and vibration, the effect depending on when and in what sequence these factors occur. Animals subjected to vibration and acceleration 5 to 7 days after irradiation showed a poorer tolerance to these factors than nonirradiated animals. In addition, the vibration and acceleration aggravated the course of the radiation sickness. Vibration and acceleration prior to irradiation not only failed to aggravate radiation sickness, but even somewhat abated its severity. Without experimental data on RBE and the combined effects of spaceflight factors, permissible levels of radiation cannot be scientifically established. A conditional

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ACCESSION NR: AT4042646

permissible dose of 25 ber (biological equivalent roentgen) has been set, but is
subject to revision upward or downward as actual data on the effect of various
cosmic radiation components and the effectiveness of antiradiation measures are
accumulated. The ideal type of radiation protection would be mechanical shielding
(i. e., an actual screen of lead or some other material) but this is technologically
impossible at present. The majority of chemical antiradiation agents cannot be
used under space-flight conditions. Since radiation effects are not confined to
humans, not only the crew members but the whole spaceship biocomplex (plants,
animals on board, etc.) must be protected lest the equilibrium of the closed
ecology be upset by hereditary or other effects. Basic elements of a radiation
safety system for spacecraft will be: 1) dependable dosimetric control of the
radiation level in the spaceship cabin by means of ship, individual, and biological
dosimeters; 2) scientific forecasting of radiation conditions in space, especially
solar chromoshpheric flares; and 3) effective pharmacological and biological
agents for protection against the harmful effects of cosmic radiation.

ASSOCIATION: none

Submitted: 27 SEPT 63

Card 3/4

SHASHKOV, V.S.; SAKSONOV, F.P.; ANTIPOV, V.V.; MOROZOV, V.S.; MURIN, G.F.;
RAZGOVOROV, B.L.; SUVOROV, N.N.; FEDOSEYEV, V.M.

Efficiency of a pharmacochemical protection against gamma irradiation
and irradiation by protons with an energy 660 and 120 Mev. Kosm. issl.
2 no.4:641-647 Jl-Ag '64.   (MIRA 17:9)

BRASLINA, V.S.; SARKISI...INA,...AN...; ...KO; KALINKOROV, ...I.; KOROLOV, ...S.;
    MININ, G.F. [Mirin]

    Comparative ... of ... effect of ... rapid ... isobolvalue...
    studies in β-irradiation and ... radiation by ... and ... protons. Farm.
    ... 24 ... ... 1-6.   (MIRA 18:8)

L 53048-65   EWG(j)/EWT(m)
ACCESSION NR: AP5014856   UR/0020/65/162/003/0688/0690

AUTHOR: Saksonov, P. P.; Antipov, V. V.; Shashkov, V. S.; Razgovorov, B. L.;
Murin, G. F.; Morozov, V. S.

TITLE: The biological effect of high-energy protons

SOURCE: AN SSSR. Doklady, v. 162, no. 3, 1965, 688-690

TOPIC TAGS: high energy proton, RBE, chemical antiradiation agent, AET, cystamine,
serotonin, 5 methoxytryptamine, mouse

ABSTRACT: The RBE of 120- and 660-Mev protons was determined for different bio-
logical objects, and the antiradiation effectiveness of certain chemicals was tested.
The objects were irradiated from a synchrocyclotron with a pulsed proton beam (with
specific ionization of approximately 6 and 20 ion pairs per 1 μ for 660- and 120-Mev
protons, respectively). The dose power was 400—700 rad/min for 660-Mev protons and
80—100 rad/min for 120-Mev protons. Different tests [not described] concerned with
vital activity and heredity were used to estimate the RBE of protons as compared
to gamma rays. Experiments showed that the RBE of 660- and 120-Mev protons (ac-
cording to LD_{50} criteria) for rats and mice is 0.7, and that protons are somewhat
less effective than gamma rays. Similar results were obtained by other experimenters.

Card 1/2

L 53048-65

ACCESSION NR: AP5014856

The antiradiation properties of various pharmacochemical substances were tested during irradiation with 120- and 660-Mev protons and also with gamma rays. Animals were injected intraperitoneally with the desired substance 15—20 min before irradiation with lethal doses. When AET, 5-methoxytryptamine hydrochloride, or serotonin creatine sulfate were injected into mice, 50—70% survived, and those that died lived longer than the unprotected animals. With cystamine dihydrochloride, 50% survived, and with tryptamine hydrochloride and 5-hydroxytryptophan, around 20% survived. The RBE of 120- and 660-Mev protons, as determined by these experiments on mice and rats, and by other experiments on fruit flies, seeds, and other biological objects, does not exceed 1. An RBE higher than 1 was observed for 510-Mev protons during experiments with dogs, and for 730-Mev protons with monkeys. The type of animal and the experimental methods used account for this difference. [JS]

ASSOCIATION: none

SUBMITTED: 31Jul64   ENCL: 00   SUB CODE: LS

NO REF SOV: 011   OTHER: 003   ATD PRESS: 4015

Card 2/2

ANTONOV, A.V.; ISAKOV, A.I.; MURIN, I.D.; NEUPOKOYEV, B.A.; FRANK, I.M.;
    SHAPIRO, F.L.; SHTRANIKH, I.V.

[Neutron diffusion in beryllium, graphite, and water, studied
by the pulse method] Izuchenie diffuzii neitronov v berillii,
grafite i vode impul'snym metodom. Moskva, 1955. 27 p.
                                          (MIRA 14:7)

   (Neutrons—Scattering)   (Beryllium)   (Graphite)

Murin, I D

BERGMAN,A.A.; ISAKOV,A.I.; MURIN,I.D.; SHAPIRO,F.L.; SHTRANIKH,I.V.; KAZARNOVSKIY,M.V.

[Neutron spectrometer to measure retardation of neutrons in lead]
Neitronnyi spektrometr po vremeni samedleniia neitronov v svintse;
doklady, predstavlennye SSSR na Mezhdunarodnuiu konferentsiiu po
mirnomu ispol'zovaniiu atomnoi energii. Moskva, 1955. 30 p.
[Microfilm]   (MLRA 9:3)
        (Neutrons) (Spectrometry)

_____ ___, ___., __ _____, ___., ___, ____, _____, _____, _____(__, I.V.
_____, A. ?., and _____, _. __.

" _ Study of Neutron Diffusion in _eryllium Graphite and _ater by the
Impulse _ethod," a paper presented at the Atoms for Peace Conference,
_eneva, Switzerland, 1955

VORONKOV, Anatoliy Yefimovich, inzh.; KORABLEV, Lev Nikolayevich,
inzh.; MURIN, Igor' Dmitriyevich, inzh.; SHTRANYKH,
Igor' Vladimirovich, kand. tekhn. nauk; SHTEYNBOK, G.Yu.,
inzh., ved. red.; SOKOLOV, I.D., inzh., red.; SOROKINA,
T.M., tekhn. red.

[High-speed multichannel pulse height analyzer]. Bystrodei-
stvuiushchii mnogokanal'nyi amplitudnyi analizator. Moskva,
Filial Vses. in-ta nauchn. i tekhn. informatsii, 1957. 63 p.
(Peredovoi nauchno-tekhnicheskii i proizvodstvennyi opyt.
Tema 41. No.P-57-16/1)   (MIRA 16:3)
          (Pulse techniques (Electronics))
             (Electronic measurements)

Murin, I.D.

AUTHORS: Antonov, A.V., Bergman, A.A., Isakov, A.I.,   89 -1-6/18
              Murin, I.D., Neupokoyev, B.A.

TITLE: The Investigation of the Slowing-Down of Neutrons in Graphite and
              Heterogeneous Uranium-Graphite-Systems by the Momentum Method
              (Issledovaniya zamedleniya neytronov v grafite i v uran-grafitovoy
              geterogennoy sisteme s pomoshch'yu impul'snogo metoda).

ABSTRACT: On the strength of experimental results the following may be said
              about the time needed for neutron slowing-down:
              During the first 80 to 90 μs slowing-down of neutrons in graphite
              takes place as a consequence of elastic collisions with free car-
              bon nuclei. After this time interaction between neutrons and the
              crystal lattice of graphite begins. It may be assumed that after
              about 160 μs the shape of the neutron spectrum nearly attains
              Maxwell's shape $M(T,E)$, which corresponds to a temperature $T(t)$
              at that moment. In the further course of events the difference
              $T(t) - T_p$ decreases experimentally.

Card 1/2 $T(t) - T_p \approx e^{-\beta t}$

The Investigation of the Slowing-Down of Neutrons in
Graphite and Heterogeneous Uranium-Graphite-Systems
by the Momentum Method

89 -1-6/18

The temperature T at the beginning of this phase is 850-900° K
and the quantity $1/\beta$ = 200 $\pm$ 25 μs. In the concluding phase
energy exchange between the neutrons and the medium is about
three times as slow as in a monoatomic gas with the mass number
12.
The theoretical value of $1/\beta$ computed according to ref. 12 is
190 μs, which agrees well with experimental values. There are
5 figures, 2 tables and 12 references, 8 of which are Slavic.

AVAILABLE: Library of Congress

Card 2/2   1. Neutrons-Velocity   2. Neutrons-Motion

BASOV, N.G.;MURIN, I.D.; PETROV, A.P.; PROKHOROV, A.M.; SHTRANIKH, I.V.

Molecular clock. Izv.vys.ucheb.zav.; radiofiz. 1 no.3:50-53 ' 58.

(MIRA 12:1)

1. Fizicheskiy institut imeni P.N. Lebedeva AN SSSR.
(Time measurements) (Molecules--Vibration)

MURIN, I.D.

Electronic diagrams of the molecular clock of the Physics Institute of the Academy of Sciences of the U.S.S.R. Izv.vys.ucheb.sav.; radiotekh. no.5:555-564 S-O '58.

(MIRA 12:1)

1. Rekomendovano Vtoroy Vsesoyuznoy Konferentsiyey Ministerstva vysshego obrasovaniya SSSR po radioelektronike.

(Time measurements)

MURIN, I.D., Cand Tech Sci -- (diss) "Molecular watch. Equipment for self-plotting of frequency of a quartz generator based on a molecular generator and a precision instrument for measuring frequencies and intervals of time." Mos, 1959, 12 pp (Acad Sci USSR. Phys Inst im P.N. Lebedev) 150 copies. Bibliography at end of text (16 titles) (KL, 36-59, 113)

- 50 -

21398

S/120/61/000/002/008/042
E192/E382

24,6600

AUTHORS: Voronkov, A.Ye., Galaktionov, A.I., Murin, I.D.,
             Sukhov, L.V. and Shtranikh, I.V.

TITLE: An Instrument for Automatic Inspection of Nuclear
             Photo-emulsions by the Television Raster Method.
             I. Servo Systems

PERIODICAL: Pribory i tekhnika eksperimenta, 1961, No. 2.
             pp. 63 - 68 + 1 plate

TEXT: The following two types of problems can be solved
by using nuclear photo-emulsions:
1)   search for the required events (stars and tracks from a
given direction and density, etc.) and determining the number
of such events in a given volume of emulsion;
2)   inspection or scanning of chosen tracks in order to
determine their scattering, ionisation, etc.
An automatic instrument capable of performing the following
operations on photo-emulsions is described:
a)   automatic following of a given track in three coordinates

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with continuous reading of the instantaneous coordinates
X_1, Y_1, Z_1 and time t necessary for moving to the next
coordinates, increments in the angle φ of the direction
of the trace during time t and the determination of the
multichannel ionisation spectrum of the trace,
b) automatic measurement of multiple scattering of a given
track by the coordinate method with the reading of the
instantaneous first, second and third differences. length of
a cell, time t taken to move along the cell, determination
of the spectrum of the positive and negative second differences
and the ionisation spectrum of the track;
c) determination of the tracks in a given direction with
automatic following of these tracks.
Only the servo system of the equipment is described, while
the apparatus for recording the output data such as
coordinates and time is not mentioned. The system is based
on the use of the video signals which are obtained during
the scanning of a section of a photo-emulsion, which is
seen in the field of a projection microscope and is projected

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An Instrument for E192/E382

on the photocathode of a television-camera tube (type ЛИ-101
(LI-101)). In order to obtain the maximum ratio of
track signal/background noise the slots which are usually
employed in such equipment were eliminated (Refs. 1-3). The
system is based on the principle of digital recording. Each
field of the television picture is counted as the number of
grains in a track; the deviation of the track from its central
position in the field of vision of the camera tube is
similarly recorded. On this basis it was possible to design
an instrument capable of tracking only one grain (in the
absence of background grains) which corresponds to the
signal/noise ratio of about 1/400 over a segment of track
200 μ long. The functioning of the system is as follows.
Of all these signals, from each line of the television
reproduction of the picture, only those are selected which
enter the so-called control zone a which is from 2 - 24 μ
wide (depending on the chosen width of the zone and magnifi-
cation of the microscope). Initially, the investigated track
is introduced into this zone. The control zone is situated

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in the middle of the lines and is divided into four sub-zones
I - IV; secondly, horizontally, it is divided into eight
equal lanes, 1-8, having a width of 0.25 - 0.27 μ (and minimum
duration of 0.25 μs). The signals of the television picture
from the camera 1 (Fig. 2 gives the block diagram of the
equipment) are applied to the amplifier 2 , where they are
shaped by an aritifical line 3 whose length can be adjusted
from 0.1 - 0.5 μs. The signals then pass through a fast
limiting circuit 4 and are applied to a control unit 5 .
Simultaneously, these signals can be observed on the screen
of a control television receiver 26 . The deviation of a
track from its so-called central position with regard to the
four sub-zones is determined in the control unit 5 . The
deviations of the track from its central position can be
of three kinds:
a)   lateral deviations α;
b)   angular deviations β, and
c)   mixed deviations γ , where both the lateral and angular
deviations are observed.

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An Instrument for ....

S/120/61/000/002/008/042
E192/E382

The deviation k is expressed as the number of pulses corresponding to the number of the lanes ℓ multiplied by the number of lines n in a sub-zone which intersect the elements of a track, i.e. k = ℓ m . The television system is based on interlaced scanning with 50 fields per second, the full number of lines being 567. For purely technical reasons, only two-thirds of all the lines of each are used. This amounts to about 94 lines per sub-zone for a field so that for the maximum detuning for a thick trace in one sub-zone the deviation is k = 378 pulses. The deviation of a track from its central position in the control zone is determined separately for all four sub-zones, for each third field, by means of four counter circuits 6 - 9 of the preliminary dividers and finally by means of four storage interpolators 10 - 13 (see Fig. 2). The logical control circuit 14 , which is coupled to 10 - 13 , produces a mismatch signal when the track deviates from its central position; the signal is then applied to the servo mechanisms of the microscope which eliminate the "mismatch". The

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S/120/61/000/002/008/042

An Instrument for E192/E382

equilibrium state is characterised by a minimum and equal
count from all four sub-zones for each third field, which
corresponds to the position of the track between the lanes
4 and 5 . The microscope is МБИ-8 (MBI-8) and it is
furnished with seven collector-type motors Д2Р (D2R)) which
operate seven control screws through suitable reduction gears
and reversible magnetic clutches. The functions of these
control organs are as follows (Fig. 2): M_1 and M_2 —

displacement along the coordinates X_1 and Y_1 ; M_3 —

displacement along the coordinate X_2 ; M_6 — displacement

along the coordinate Z_2 (micrometer drive for the focusing)

M_4 - displacement along the coordinate Y_2 or the displacement

of the microscope eyepiece; M_5 - rotation of the Dovey prism

M_7 - positioning of the microscope table. For convenience

all the motors can be manually operated by means of suitable

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S/120/61/000/002/008/042

An Instrument for E192/E382

keys. The deviation of a track from its central position
(α, β, or γ) results in the rotation of the Dovey prism due
to the signals obtained from the logic circuit 14 ;   this
also results in the rotation of the sine-cosine potentiometer
29, whose output voltage controls the speed of the motors M_1

and M_2 via the control circuits 16 and 15 . A special
shutter placed on the axis of the prism controls the motion
of the drive screws by means of magnetic clutches which are
operated by photo-diodes and relays. The motors employed
have a comparatively small speed range (500 to about
7 000 r.p.m.). Consequently, at certain angular positions
φ_2 of the prism which correspond to the predominant direction
of motion along one of the coordinates X_1 or Y_1 , the

system automatically produces a discrete displacement of the
track along one of the coordinates by means of a magnetic
clutch operating at a small constant velocity. The above
deficiency of the motors limits the measurement of the track-

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S/120/61/000/002/008/042
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displacement velocities to 30 - 160 μ/sec. The accuracy and
the stability of the automatic following of a track is
increased by introducing a feedback path into the system which
corrects the velocity ratio of the motors M_1 and M_2 . The
feedback loop employs the mismatch error signal from the
logical circuit 14 . The system operates as a switching
servo mechanism with discontinuous control proportional to the
error signal. If this system is used for the automatic
measurement of the scattering or coordinates its operating
speed along a track can reach 150 μ/s. The error in the
measurement of the second diffemces is $\pm$ 0.03 μ. When used
in the simultaneous measurement of scattering and ionisation,
the speed is 20 μ/s. The authors make acknowledgment to
N.A. Dobrotin, I.M. Frank, I.Ya. Barit for cooperation and
to V.A. Ryabov, G.I. Yegorov and their collaborators of the
Physics Institute of the AS USSR, who took part in this work.

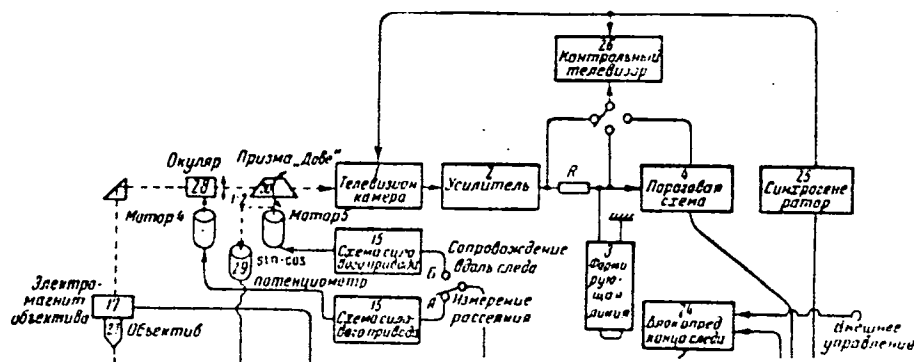Card 8/10

An Instrument for ....

S/120/61/000/002/008/042
E192/E582

There are 4 figures and 7 references: 3 Soviet and 4
non-Soviet.

ASSOCIATION: Fizicheskiy institut AN SSSR   (Physics
Institute of the AS USSR)

SUBMITTED: April 25, 1960

Card 9/10

MURIN, I.D.

Reversible counter equipped with the OG-5 dekatrons. Prib.
i tekh.eksp. 6 no.6:127-129 N-D '61.   (MIRA 14:11)

1. Fizicheskiy institut AN SSSR.
                    (Nuclear counters)

24 6 83c
21. 6 CCC

S/120/62/000/001/008/06.
E039/E485

AUTHORS: Voronkov, A.K., Murin, I.D., Sukhov, L.V.,
Shtranikh, I.V.

TITLE: An apparatus for the automatic survey of nuclear
photo-emulsions by a television roster method
II. The recording system

PERIODICAL: Pribory i tekhnika eksperimenta, no.1, 1962, 42-.)

TEXT: In the study of cosmic rays and other nuclear processes
thick layer photo-emulsion plates are used for recording charged
particles.   The resulting tracks in the emulsion are studied
under a microscope.   In the particular cases when emulsions are
exposed in artificial satellites and in accelerators, a very large
amount of work is entailed in surveying the plates.   Using a device
for the automatic television survey of nuclear photo-emulsions,
previously described by the present authors (Ref.1: PTE, No.2,
1961, 63), the rate of making measurements on scattering and
ionization of particles is accelerated by 10 to 100 times.
Some of the main characteristics of the apparatus are as follows:
1) type of microscope МБИ8 (MBI8) (modified);

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An apparatus for the automatic ...

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E039/E485

2) measurement of ionization velocities of 20 to 100 micron/sec;
3) measurement of scattering velocities up to 200 micron/sec;
4) accuracy of measuring scattering tracks $\pm$ 0.01 micron;
5) length of measured track (maximum) 50 mm;
6) limit of microcursor $\pm$ 250 micron;
7) capacity of analyser channels 999 impulses;
8) frequency of figure printing $\sim$ 75 symbols/sec;
9) power consumption $\sim$ 3 KW
10) number of valves, 500.
The method of measuring ionization track lengths and multiple
scattering is described in detail. A special form of oscillating
microscope objective for scanning the plate, with automatic
focusing, is used. The microscope stage is moved synchronously
in steps of 2 mm. This usually produces up to 6 impulses and
corresponds to 64 frames on the television presentation. The
time between each group of pulses is used for damping the system
and improving the focusing. The stability and accuracy of the
results obtained is also considered. Some of the essential
requirements in this respect are:
Card 2/3

An apparatus for the automatic ...

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1) Maintenance of contrast, which depends on, a) the amplification coefficient of the video-amplifier; b) the sensitivity of the transmitting tubes; c) the intensity of illumination.
2) Maintenance of the linearity of the amplifier and accuracy of focusing.
There are 3 figures.

ASSOCIATION: Fizicheskiy institut AN SSSR
(Physics Institute AS USSR)

SUBMITTED: June 10, 1961

Card 3/3

MURIN, J.; BERNARD, J.

MURIN, J.; BERNARD, J. Mining controls, daily control of metal content p. 7

Vol. 4, no. 1, Jan. 1956
RUDY
TECHNOLOGY
Praha, Czechoslovakia

So: East European Accession, Vol. 6, No. 2, 1957

MURIN, Jozef

A conference on increasing the efficiency of the main track.
Zel dop tech 10 no.9:587 '62.

MURIN, Jozef

Development of railroads in the Tatra Mountains area. Zel dop tech
11 no.4:93-95 '63.

MURIN, Josef

Long-term solution of transportation problems in the Vysoke Tatry
Mountains. Zel dop tech 11 no.7:208   '63.

MURIN, Jozef

New east-west railroad line on the Slovak territory. Zel.dop tech 12 no.1:
10-11 '64.

MARIN, Josef

Why is we t cq rm n w s ough r i r a
I : 266-268 ...

MURIN, Jozef

Wide-gauge track in ...

MURIN, Martin

       Prospects of the new organization. Letecky obzor 9 no.1:1-2
       Ja '65.

MURIN, Martin

    Order and discipline. Letecky obzor 6 no.4:97 Ap '62.

MURIN, Pavol, inz.

Origin and development of coal mining in Slovakia. Uhli 6 no. 3:
257-260 Ag '64.

1. Slovenske uholne bane, Prievidza.

MURIN, S. I.

(2)

Advances in the study of vascular action by drugs. S. I. Murin (N. E. Bauman Vet.-Zootech. Inst., Kazan). *Farmakol. i Toksikol.* 16, No. 6, 51-4(1953).—In tests with isolated rabbit ears, hemosporidin left vascular lumens unaffected in 65.1, circulatory nerves in 36.7% of cases; trypan blue, 41.4 and 29; novoplasmin at 10 p.p.m., 38.7 and 14.4; flavacridine, dild. to 1 p.p.m. because of its toxicity, 51.4 and 3%.   Julian F. Smith

Chem Pharmacology,

MURIN, Vasiliy Aleksandrovich [Murin, V.O.], kand. ekon. nauk; ROMANENKO,
I.N., akad., red.; ONOPRIIENKO, Z.T., red.; MANOYLO, Z.T. [Manoilo,
Z.T.] tekhn. red.

[Problems in the economy and organization of fishery management]
Pytannia ekonomiky i organizatsii rybnoho hospodarstva. Kyiv,
Vyd-vo Ukrains'koi Akad. sil's'kohospodars'kykh nauk, 1960. 186 p.
(MIRA 14:7)
1. Ukrainskaya akademiya sel'skokhozyaystvennykh nauk, chlen-korres-
pondent Vsesoyuznoy akademii sel'skokhozyaystvennykh nauk im. V.I.
Lenina (for Romanenko)
(Fisheries)

MIKHAYLOV, Stefan Vasil'yevich, Laureat Gosudarstvennoy premii, kand.
ekon. nauk; VASYUTIN, V.F., retsenzent; MURIN, V.A., retsen-
zent; SMETANIN, K.A., kand. ekon. nauk, spetsred.; NOZDRINA,
V.A., red.; SATAROVA, A.M., tekhn. red.

[Economics of the fishing industry of the U.S.S.R.]Ekonomika
rybnoi promyshlennosti SSSR. Moskva, Pishchepromizdat, 1962.
288 p.   (MIRA 15:12)
                    (Fisheries)

MURIN, V.A.

System of pond fish culture collective farms of the wooded
steppe area of the Ukrainian S.S.R. Trudy sov. Ikht. kom.
no.14:133-137 '62.   (MIRA 15:12)

1. Institut rybnogo khozyaystva Ukrainskoy akademii sel'sko-
khozyaystvennykh nauk.
                    (Ukraine—Fish culture)

ACC NR: AT7001712   SOURCE CODE: UR/2594/65/000/143/0036/0040

AUTHOR: Bezel', V. S.; Gavrilov, F. F.; Murin, V. I.

ORG: none

TITLE: Thermoluminescence of ZnS-Ag and the temperature dependence of its quenching rate upon excitation with alpha particles

SOURCE: Sverdlovsk. Ural'skiy politekhnicheskiy institut. Trudy, no. 143, 1965. Atomnaya i molekulyarnaya fizika (Atomic and molecular physics), 36-40

TOPIC TAGS: thermoluminescence, zinc sulfide optic material, alpha bombardment, luminescence quenching, scintillation

ABSTRACT: This is a continuation of earlier work (Tezisy dokladov XII soveshchaniya po lyuminestsentsii [Abstracts of Twelfth Luminescence Conference], M., 1964) where it was shown that the quenching rates of photoluminescence and cathode luminescence in ZnS-Ag increase with increasing density of excitation by α particles. To establish a connection between the quenching of the scintillations and the electron traps in ZnS-Ag, in view of the fact that the earlier investigation has shown that at least two kines of such traps exist in this material, the authors investigated the thermoluminescence curves and the rate of scintillation quenching by exposing ZnS-Ag crystals grown from the melt to α particles. The temperature range was from that of liquid nitrogen to 100C. The rate of change of the temperature was 0.4 deg/sec. The samples were excited with ultraviolet from a mercury lamp (3660 Å) and α particles

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ACC NR: AT7001712

from Pu^{239} (5.15 and 2 MeV). The thermoluminescence curves showed two main peaks, at -150 - 160C and at -10 - 0C. The former is connected with the filling of the shallow levels and the latter with the filling of deep levels. In the case of α-particle irradiation, a similar phenomenon was observed, except that there was practically no filling of the deep levels. An analysis of the temperature dependence of the attenuation of the scintillations shows the half-life of the scintillations to be a regular function of the reciprocal of the temperature, which can be represented by a straight line when suitable coordinates are chosen. This temperature dependence also points to the predominant effect of the shallow levels. The depth of the level is found to be 0.15 eV below the conduction band. The results also point to a much stronger effect of α-particle irradiation on the attenuation than ultraviolet. Orig. art. has: 3 figures and 2 formulas.

SUB CODE: 20/   SUBM DATE: 00/   ORIG REF: 005/   OTH REF: 003

Card   2/2

USSR/ Geology - Rock formation

Card 1/1   Pub. 46 - 6/21

Authors   : Starik, I. Ye.; Murina, G. A.; and Krylov, A. Ya.

Title   : Criteria of the suitability of minerals for determination of their age
             by the helium method

Periodical : Izv. AN SSSR. Ser. geol. 20/2, 67 - 71, Mar-Apr 1955

Abstract   : By making use of the fact, established through research, that there is
             a definite connection between the form in which radio-active elements
             are present in a mineral and the preservation of helium in the mineral
             during geological times, the age of rocks was successfully determined.
             Twenty types of granite were subjected to this helium method to deter-
             mine their age. Four references: 1 USA and 3 Soviet (1933-1946).
             Tables; graphs.

Institution : .....

Submitted   : December 1, 1954

POLEVAYA, N.I.; MURINA, G.A.; CHERNOVA, N.N.

Possibility of determining the absolute age of effusive rocks.
Dokl.AN SSSR 105 no.3:523-525 N '55.   (MLRA 9:3)

1. Vsesoyuznyy nauchno-issledovatel'skiy geologicheskiy institut.
Predstavleno akademikom D.I. Shcherbakovym.
        (Rocks, Igneous) (Argon--Isotopes)

MURINA, G. A.

Possible errors in the absolute age determination of natural rocks by the argon method. N. I. Polevaya, G. A. Murina, and V. D. Sprintsson. *Vsesoyuz. Nauch.-Issled. Geol. Inst., Information. Sbornik* 1956, No. 3, 109–16.—The errors include the occasional, systematic ones in the detn. of the K-decompn. const. and those resulting from migration of A and K.   Pauline Szapiro

Murina, G.A.

USSR/ Analytical Chemistry. Analysis of Inorganic   G-2
    Substances.

Abs Jour: Referat. Zhur.-Khimiya, No. 8, 1957, 27140.

Author   : G.A. Murina, A.D. Iskanderova, V.D. Sprontsson.

Inst   : All-Union Scientific Research Geological
            Institute.

Title   : Comparative Characteristic of Some Analytical
            Methods of Potassium Determination in Applica-
            tion to Silicates.

Orig Pub: Inform. sb. Vses. n.-i. geol. in-ta, 1956,
            No. 3, 134 - 137.

Abstract: It is shown with radioactive indicators (K^{42} and
            Na^{24}) that the perchlorate and dipicrylamine
            methods of K determination are not worse than
            the chloroplatinate method as far as the exactitude

Card 1/3

USSR/ Analytical Chemistry. Analysis of Inorganic   G-2
        Substances.

Abs Jour: Referat. Zhur.-Khimiya, No. 8, 1957, 27140.

is concerned. The fast perchlorate method based
on the dissociation of the weighted sample of a
rock with the mixture $HF-HClO_4$, treatment of the
nearly dry precipitate with the mixture C_2H_5OH-
$HClO_4$ (99.8 : 0.2) and drying $KClO_4$ at 300 to
350° gives not quite correct results especially in
the presence of considerable amounts of Fe. A
fast dipicrylamine method was developed; this
method is applicable to the determination of K
in various silicate rocks and much easier than the
chloroplatinate method. The rock sample weigh-
ing 0.2 to 0.5 g is decomposed with the mixture
of HF with H_2SO_4, the dry residue is extracted
with hot water, about 0.5 g of MgO is added,
R_2O_3 is filtered off, and the solution is diluted
to 50 or 100 ml. An aliquot portion is concen-

Card 2/3

MURINA, G, A.

Murina, G. A. - Geologic and Absolute Age of Granitoids of the Ukraine.

The Sixth Session of the Committee for Determining the Absolute Age of
Geologic Formations at the Department of Geologic-Geographical Sciences
(OGGN) of the USSR Academy of Sciences at Sverdlovsk in May 1957.

Izv. AN Nauk SSSR, Ser Geol . No 1, 1958, p 115-117 Author Pekarskaya, T B